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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/565,008

01/23/2007

Chul-Sik Yoon

123054-06005135

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02/20/2009

LOWE HAUPTMAN HAM & BERNER, LLP
1700 DIAGONAL ROAD
SUITE 300
ALEXANDRIA, VA 22314

EXAMINER

JAMA, ISAAK R

ART UNIT

PAPER NUMBER

2617

MAIL DATE

DELIVERY MODE

02/20/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/565,008 | YOON ET AL. | |
| | Examiner | Art Unit | |
| | ISAAK R. JAMA | 2617 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 January 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1/23/2007</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because Figures 1-14 are skewed. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-15 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Number 7,450,926 (Chang et al.) in view of U.S. Patent Number 6,473,607 (Shohara et al.).

3. Regarding claims 1, 9 and 14, Chang teaches a power saving mode control system of a base station in a wireless portable network system **[Abstract]**, comprising: a message receiver **[Figure 1, #20 – Base station]** for receiving a sleep mode request message from the subscriber station **[Figure 1, step 31, column 2, lines 7-12]**; a message parser for parsing the sleep mode request message and extracting a minimum sleep interval, a maximum sleep interval, and a subscriber station identifier **[Column 2,**

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lines 18-24]; a grouping controller for determining a sleep mode entering time of the subscriber station which has requested the sleep mode based on the minimum sleep interval and the maximum sleep interval in order to group listening intervals of a plurality of subscriber stations and align them **[Columns 5 & 6, lines 57-67 and 1-10]**; and a message transmitter for reporting the minimum sleep interval, the maximum sleep interval, and the sleep mode enter time to the subscriber station which has requested the sleep mode **[Column 7, lines 21-28]**. In addition, Chang teaches exponentially increasing a sleep interval during the sleep mode **[Figure 9, column 10, lines 35-46]**. But Chang fails to teach that a memory for storing sleep mode information. Shohara teaches a communication device with a self-calibrating sleep timer whereby a scheduler means contain program memory in the storage means, the records including a first command to cause execution of controller timer calibration algorithm, scheduled for shortly after turn on of communication device, said command to provide for calculation of correct value of sleep counter increment to compensate for sleep oscillator error, thereby enabling synchronous operation of the communication device, a second command to execute controller sleep mode adjustment algorithm **[Column 7, lines 35-46]**. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was to include the storage means of Shohara in the system of Chang in order to supervise operation of the mobiles.

4. Regarding claim 2, Chang further teaches that the power saving mode control system of claim 1, further comprising: a traffic receiver for receiving traffic from a network; and a traffic transmission controller for buffering the traffic up to the listening

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interval of a subscriber station which will receive the traffic, and transmitting the traffic

[Figure 1, steps 32-37, column 2, lines 39-47].

5. Regarding claim 3, Chang teaches that the power saving mode control system of claim 2, wherein the traffic transmission controller comprises: a subscriber station identification unit for identifying the subscriber station which receives the traffic; a buffer for buffering the traffic up to the listening interval of a subscriber station; a traffic interval calculator for calculating a traffic transmission interval, corresponding it to the identified subscriber station, and transmitting the same to the grouping controller; and a traffic transmitter for transmitting the buffered traffic **[Columns 9 & 10, lines 60-67 and 1-3; i.e. if the base station BS transmits the SLP-RSP(sleep response) message serving as a response to the SLP-REQ (sleep request) message, the subscriber terminal enters the sleep mode at a sleep mode start time t_0 prescribed in the sleep request process, is in the sleep mode during a min-window interval Δt_1 determined by the sleep request process, and receives the TRF-IND (traffic indication) message during the listening interval Δt_i . In this case, the min-window interval Δt_1 is an initial paging interval. The subscriber terminal again receives the TRF-IND message after the lapse of a predetermined paging interval Δt_2 including the listening interval Δt_i].**

6. Regarding claim 4, Chang teaches that the power saving mode control system of claim 3, wherein the grouping controller updates the maximum sleep interval to correspond to the traffic transmission interval by using the traffic transmission interval transmitted by the traffic transmission controller **[Figure 1, step 39].**

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7. Regarding claims 5, 12 and 20, Chang teaches that the power saving mode control system of claim 3, wherein the grouping controller selects a time wherein the remainder obtained by dividing the frame number by the maximum sleep interval align window size managed by the system corresponds to the minimum sleep interval, and determines the sleep mode entering time **[Figure 3, column 5, lines 1-7]**.

8. Regarding claim 6, Chang teaches that the power saving mode control system of claim 3, wherein the grouping controller determines the length of the listening interval on the grouped subscriber stations, and the message transmitter reports the listening interval **[Figure 3, column 5, lines 1-7]**.

9. Regarding claims 7 and 8, Chang teaches that the power saving mode control system of claim 6, wherein the listening interval is established within the sleep interval **[Figure 7, column 9 & 10, lines 60-67 and 1-12]**.

10. Regarding claim 10, Chang teaches that the minimum sleep interval is determined based on the minimum sleep interval requested by the subscriber station **[Column 9, lines 62-64]**.

11. Regarding claim 11, Chang teaches that the maximum sleep interval is determined based on the interval of periodic traffic **[Column 10, lines 42-46]**.

12. Regarding claim 13, Chang teaches that the power saving mode control method further comprising grouping and storing a plurality of subscriber stations switched to the listening interval at the same time **[Column 10, lines 26-28]**.

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13. Regarding claim 15, Chang teaches a method of transmitting sleep indicator fields with different parameter values to the grouped subscriber stations according to results of the traffic checking step **[Figure 9, for example, SS#1 and SS#2]**.

14. Regarding claim 18, Chang teaches that the method includes switching the subscriber station to an awake state and receiving the traffic buffered to the base station when the subscriber station identifier corresponding to the subscriber station is searched **[Column 2, lines 33-47]**.

15. Regarding claim 19, Chang teaches that the maximum sleep interval corresponds to the traffic having periodicity **[Figure 9, i.e. Subscriber station # 1 in relation to the periodicity of the traffic and sleep periods]**.

16. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Number 7,450,926 (Chang et al.) in view of U.S. Patent Number 6,473,607 (Shohara et al.) and further in view of U.S. Patent Number 7,111,158 (Burroughs et al.)

17. Regarding claim 16, Chang and Shohara has been discussed above in regard to claim 15. But the combination of Chang and Shohara fail to specifically disclose that traffic indicator fields are physical layer messages. Burroughs teaches a technique for transitioning control of a serial ATA device among multiple hosts in using sleep and wake commands whereby a host and a device to properly exchange information, the host-side controller establishes a communication link (i.e., Physical Layer (PHY) communication) with the device through the communications medium **[Column 1, lines 20-23]**. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was to include the method of Burroughs in the combined system

of Chang and Shohara in order to allow communication between physical pieces such as mobile stations and base stations.

18. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Number 7,450,926 (Chang et al.) in view of U.S. Patent Number 6,473,607 (Shohara et al.) and further in view of U.S. Patent Number 7,430,421 (Park)

19. Regarding claim 17, Chang further teaches that the method includes allowing the grouped subscriber stations to maintain the sleep mode during the subsequent sleep interval when receiving a traffic indicator field having a parameter value reporting that no traffic is transmitted **[Figure 1, steps 34-39]**. But neither Chang nor Shohara teaches allowing the grouped subscriber stations to search for a subscriber station identifier corresponding to the traffic when receiving a traffic indicator field having a parameter value reporting that traffic is transmitted. Park teaches a method for controlling sleep mode in wireless access communication system whereby, a method including generating a group identifier by using a connection identifier of a subscriber station; assigning the connection identifier to the subscriber terminal; receiving a sleep request (SLP-REQ) message included a index value from the subscriber terminal; determining the index value from among a plurality of the index values based on a negotiation between the base station and the subscriber terminal and transmitting a sleep response (SLP-RSP) message including the determined index value to the subscriber terminal; and determining a listening position by using the group identifier of the subscriber terminal that transmits the SLP-REQ message and the determined index value **[Column 5, lines 17-29]**. Therefore, it would have been obvious to a person of

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ordinary skill in the art at the time the invention was to include the method of Park in the combined system of Chang and Shohara in order to allow for the control of sleep modes.

Conclusion

20. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent Number 5,539,748 (Raith) discloses an enhanced sleep mode in radio communication systems. U.S. Patent Number 6,804,542 (Haartsen) discloses sleep modes in peer-to-peer communications. U.S. Patent Number 6,937,578 (Hunzinger) discloses a fast-sleep configuration for CDMA slotted mode. U.S. Patent Number 6,999,799 (Almassy) discloses a system and method for adaptive deep-sleep slotted operation. U.S. Patent Number 7,260,068 (Hsieh et al.) discloses a method for switching a time frame based mobile unit to a sleep mode.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ISAAK R. JAMA whose telephone number is (571)270-5887. The examiner can normally be reached on 7:30 - 5:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lester G. Kincaid can be reached on (571) 272-7922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/IRJ/

/Lester Kincaid/
Supervisory Patent Examiner, Art Unit 2617